



**Testimony**

**of**

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President & Deputy Chairman  
The NASDAQ Stock Market**

**before the**

**House Financial Services Committee  
Subcommittee on Capital Markets, Insurance,  
and Government Sponsored Enterprises**

**on**

**“Recovery and Renewal:  
Protecting the Capital Markets Against Terrorism Post 9/11”**

**February 12, 2003**

Mr. Chairman and Members of the Subcommittee, I am Rick Ketchum, President and Deputy Chairman of The NASDAQ Stock Market. Thank you for providing me this opportunity to describe the steps NASDAQ has taken to ensure our business continuity in the event of another catastrophic event. NASDAQ is the world's largest electronic stock market. With approximately 3,700 companies, NASDAQ lists more companies and trades more shares per day than any other U.S. market. It is home to category-defining companies that are leaders across all areas of business including technology, retail, communications, financial services, media and biotechnology industries.

Because of the electronic nature of our market, it is important to note at the outset that at no time following the truly catastrophic disaster that occurred on September 11, 2001 were NASDAQ's systems inoperative. At the time of the 9/11 attacks, trading was suspended - but NASDAQ's systems and network continued to operate. Because our primary and backup technology centers are located outside Manhattan, and were therefore shielded from the damage to the downtown infrastructure, our primary concern related to our ability to connect with the firms that are active in NASDAQ and bring liquidity and order flow to our market place. In fact, NASDAQ continued to operate systems later than normal on 9/11 to allow firms manual access for reconciliation and mutual fund pricing and related

activities. NASDAQ's systems operated virtually continuously throughout the rest of the week to allow firms to test connectivity.

Following the 9/11 disaster, we worked constructively with the SEC, Treasury, Federal Reserve, NASD and the New York Stock Exchange (NYSE) as well as key member firms to resume trading on a coordinated basis as expeditiously as possible. That cooperation was an important factor in reopening the markets and restoring investor confidence in the markets. We at NASDAQ remain ready to cooperate again in that same spirit and we believe that American investors deserve nothing less. I am very proud of the efforts of so many talented people at NASDAQ who worked, tirelessly with so many others in the financial services community, to bring our markets back up on that Monday, 9/17, safely and without incident.

I will review, in a general way, our assessment of the potential challenges facing NASDAQ in the event of another crisis, explain NASDAQ's business continuity and disaster recovery plans, and describe our efforts to facilitate trading on an industry-wide basis should that prove necessary in the future.

## **I. Threat Assessment**

Threats to NASDAQ could result from a variety of actions, intentional and unintentional, as well as domestic and foreign. Foreign threats may originate from

hostile nation-states, terrorist organizations, and other less organized groups that seek to degrade the U.S. critical infrastructure. Domestic threats range from groups seeking to destabilize the financial markets for political or criminal motives to hacker groups attacking highly visible organizations. Threats can come from outside the financial services community, from within our participants' organizations, and from within NASDAQ.

NASDAQ works continually to improve its understanding of the natural and artificial threats that exist in our critical national infrastructures, regional utilities, power sources, state transportation systems, and telecommunication systems and to translate that knowledge into our business continuity plans disaster recovery planning. NASDAQ also maintains close contact with the FBI, the Department of Homeland Security, and the SEC as well as state and local law enforcement so that critical intelligence information can be utilized to enhance physical security and gain insight into other threats such as electronic attacks and computer hacking.

While the events of September 11th did not fundamentally change NASDAQ's understanding of the potential range of threats to the financial services sector (whether acts of nature or man-made disasters), they amplified awareness of the potential reach that could be exerted by such threats. The events of 9/11 provided clarity and urgency to NASDAQ's business continuity and emergency/disaster recovery planning. In response to a potential increase in the

severity and likelihood of a threat to NASDAQ we have refined our personnel security strategy as it relates to access to critical information systems, including through increased background checks of all persons with access to our networks or systems to personnel checks and screening at our data centers.

## **II. Business Continuity/Disaster Recovery Planning**

Keeping U.S. securities markets open is critical to the national and global economy. NASDAQ has implemented a fully developed business continuity/disaster recovery plan that will allow the continued trading of NASDAQ securities in the event that one of the NASDAQ data facilities is rendered inoperative. In short, we believe that disasters are managed not only by hardening potential points of failure, but also by building redundancies wherever possible into the entire trading network.

Geographic diversification of redundant facilities is a core component of NASDAQ's business continuity strategy. Our redundant data facilities are located hundreds of miles from one another in differing geologic and climactic zones so that the same natural event has a low likelihood of impacting both sites. NASDAQ also decreases its vulnerability by operating from separate utilities and local telecommunications services. This separation provides safety from regional events

such as weather, earthquakes, transportation shutdowns, data communication failures, disease, and other local problems that might harm the metropolitan areas.

NASDAQ's redundant trading facilities can accommodate comparable trading volumes. We staff both facilities on a 24-hour basis, and have a full complement of operations personnel on duty during the primary market period (9:30 to 4:30 ET) with each technical discipline that would be required to operate and maintain our trading environment.

NASDAQ's geographically decentralized network has several levels of redundancies, which are specifically designed to withstand catastrophic events. Virtually all firms are connected to NASDAQ through a set of several NASDAQ servers on their sites and in their backup centers. Each of the servers in the NASDAQ network is connected to two distinct NASDAQ connection centers.

There are more than 20 NASDAQ connection centers located throughout the United States – 4 in the NY metropolitan area. Each of these centers is connected to both our Primary and Backup data centers. Additionally, each of our critical connections is supported by numerous telecommunications vendors so as to offer resiliency against a systemic vendor failure.

NASDAQ enhances continuity of our telecommunication services by purchasing overlapping services from multiple suppliers that share no common infrastructures. Both local and national services providers facilitate local

connectivity to our facilities, and each has implemented its own isolated circuits. These local feeds enter our national network backbone at several locations and our national networks carry this diversity through to the participants' local telecommunications connections.

NASDAQ operates a variety of networks using both private (dedicated leased line), semi-private (shared leased line), and public (Internet) telecommunications systems and components. We have established baseline standards for network security, firewall, and intrusion detection, which are consistently exceeded in the design, implementation, and operation of our service networks. Core market products and services operate exclusively on secure custom-designed and private data networks, which are isolated from all other networks. We actively control vulnerabilities by maintaining patch levels on all systems/components and by thoroughly testing and managing all changes to our networks through a change control process.

At NASDAQ, our long-term strategy is to progressively “drive security down” into the lower layers of our infrastructure at each opportunity. Where we can, NASDAQ is focusing on providing access controls at the network and systems levels so that we can ensure that authenticated users are coming to NASDAQ only through their authorized servers and communication channels.

### **III. Industry-Wide Support**

While we are confident that our systems design and contingency plans contain appropriate levels of redundancy, NASDAQ regularly works with our Member firms to enhance their backup capabilities. As a result of these ongoing efforts, I am sure that our equities markets are more resilient than they were on 9/11. NASDAQ has disaster recovery office space equipped with NASDAQ workstations and connectivity to NASDAQ that can be made available to participants who have temporarily lost access to or use of their trading facilities.

In addition to doing whatever we can to ensure continued operation of the markets, we continue to work with the SEC and the NYSE to develop a plan according to which NASDAQ and the NYSE can trade each others securities in the event of a disaster that rendered either market inoperable. Toward that end, NASDAQ has submitted to the SEC a proposal for a comprehensive Plan to facilitate the trading of securities listed on the NYSE should that need arise. The trigger for the implementation of this Plan is a catastrophic event that affects the NYSE's ability to operate for an extended period of time (two weeks or more). NASDAQ would implement the Plan only after consultation with and approval by the NYSE and the SEC.



Quoting and trading of NYSE securities by NASDAQ market makers would occur through NASDAQ's primary execution system, SuperMontage. NASDAQ market makers would self-register to trade the NYSE securities consistent with NASDAQ rules. Regional stock exchanges that are members of the NASDAQ unlisted trading privileges (UTP) plan and that are either linked to a NASDAQ quotation and trading system or report trades to the NASDAQ securities information processor (SIP) (or its successor) would be eligible to trade NYSE securities pursuant to the UTP. Post trade activity would take place through NASDAQ's Automated Confirmation Transaction (ACT) system. Clearing and settlement would occur through the Depository Trust Clearing Corporation. Market data dissemination (best bid, best offer, and last sale) would occur through NASDAQ's data dissemination facilities.

NASDAQ would, if necessary, trade all NYSE equity securities. It may be necessary to assign symbols to those securities that differ from those currently used by the NYSE, i.e., 4- or 5-character NASDAQ symbols. Transactions in NYSE listed securities would be monitored by NASDAQ MarketWatch and overseen by NASD Regulation.

NYSE securities would be subject to all the NASDAQ trading rules that apply to the quoting and trading of NASDAQ National Market stocks including, subject to SEC approval, the NASD Short Sale Rule. We would request that the

SEC exempt NYSE-listed securities from SEC Rules that govern normal trading of exchange-listed securities. NYSE-listed securities would be exempt from the requirements of the Consolidated Tape/Consolidated Quotation (CTA/CQ) and Intermarket Trading System Plans. Finally, NYSE-listed securities would be subject to the NASDAQ UTP Plan so that quotes and trades of NYSE securities would be printed on the NASDAQ tape.

It is important to emphasize that these plans, like the NYSE plans to trade some NASDAQ securities, are only a final layer of protection for the U. S. securities markets. The first line of defense for stock markets will always be their own back-up systems and the continued operation of each market has to be the first priority. Moreover, those back-up plans must result in no competitive advantage. As a result, NASDAQ would immediately cease operating this back-up system when the NYSE was ready to resume trading.

#### **IV Conclusion**

In the wake of 9/11, the U.S. financial industry demonstrated its resilience and resolve to maintain the most liquid and stable markets in the face of terrible challenges. Clearly NASDAQ's trading network has demonstrated its unique value as a part of this infrastructure. However, our work is not done. NASDAQ,

the government and the financial services industry will need to continue to work in concert to ensure that trading can resume following a catastrophic event.

The current legal and regulatory infrastructure that has resulted in the strongest, most resilient markets in the world is the result of far-sighted leadership over many years. Congress laid the foundation with the passage of the '33 Securities Act, the '34 Exchange Act and the '75 Act Amendments. However, the U.S. financial markets are not static; they will and should continue to evolve. It is in that light that I mention the importance of NASDAQ's application to be recognized as a national securities exchange, which has been pending at the SEC for over two years.

In addition to eliminating any potential conflict of interest that may arise from the current voting control by the NASD, as an exchange NASDAQ will shed a cumbersome board structure that could impede decision-making in a time of crisis management. Further, without such exchange status, NASDAQ is unable to raise needed equity capital to enhance systems and facilities on an ongoing basis and remain competitive with domestic and international competitors. Finally, as an exchange, NASDAQ will be able to more easily navigate regulatory obstacles to trading in securities listed on other markets in a crisis situation.

Thank you again for providing me this opportunity to describe the steps NASDAQ has taken to ensure our business continuity in the event of another catastrophic event. I would be happy to answer any questions.